

09/851,634
January 6, 2004

Wells St. John P.S.

REMARKS

Claims 64-87 are pending in the application with claims 66, 75, 80, and 83 amended herein.

The disclosure is objected to because of alleged informalities in the related application information. Applicant notes that page 2 of the previously filed Response to March 12, 2003 Office Action already amended the specification to update the related application information. Applicant is not aware of any further update needed nor does the Office Action specify a further update. Applicant requests withdrawal of the objection.

The drawings are objected to under 37 C.F.R. 1.83(a) as allegedly failing to show every feature of the invention specified in the claims. Applicant traverses. As may be appreciated from the discussion below regarding the written description requirement, Figs. 15A-C of the present specification show every feature set forth in claims 68, 69, and 71-87. No amendment to the drawings or cancellation of any claim is required to fully comply with 37 C.F.R. 1.83(a). The drawings and claims as presently constituted are in compliance. Applicant requests withdrawal of the drawing objection in the next Office Action.

Claims 68, 69, and 71-87 stand rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. Applicant requests reconsideration.

09/851,634
January 6, 2004

Wells St. John P.S.

Regarding claim 68, those of ordinary skill will readily appreciate that Figs. 15A-C clearly display a step from the substrate to the raised mandril at the at least one perpendicular edge. In addition, even though the present specification does not expressly use the term "step" with direct reference to Figs. 15A-C, page 14, line 17 to page 15, line 8 of the present specification use the term "step" with direct reference to an analogous structure shown in Fig. 20A-B. The similarities between the base surface, beveled edge, and raised surface of the two structures is readily apparent. Accordingly, step 192d of Fig. 20A has a similar counterpart in Figs. 15A-C.

In a generic sense, as known to those of ordinary skill, a "step" is merely a transition from one elevational level to another elevational level. Such a step is shown in Figs. 15A-C. Claim 68 sets forth that the construction includes a step "at the at least one perpendicular edge from the substrate to the raised mandril." Accordingly, the structure of claim 68 may be contrasted with a construction that has a perpendicular edge but does not have a step from a substrate to a raised mandril at the perpendicular edge. At least for the indicated reasons, Applicant asserts that claim 68 has a proper description in the specification.

Regarding claim 69, it may appreciated from the above discussion that mandril 134a shown in Figs. 15A-C includes four edges and that a step exists at each of the four edges from the substrate (patterned insulative material 134) to the raised mandril. At least for such reason, claim 69 has a proper description in the specification.

09/851,634
January 6, 2004

Wells St. John P.S.

Regarding claim 71, it is apparent from Figs. 15A-C and the associated text at page 21, line 10 to page 23, line 11 that the present specification describes a layer of structural material 148 that forms a device feature 158 as an "edge defined" feature on a perpendicular edge of mandril 134a but not on a beveled portion 134b of mandril 134a. The step (analogous to step 192d of Fig. 20A) in Figs. 15A-C also does not have any layer of structural material thereon. The term "edge defined" feature is described at least at page 2, line 19 to page 3, line 11 of the present specification. At least for such reason, Applicant asserts that claim 71 has a proper description in the specification.

Regarding claim 72, the "full lateral extent" of a perpendicular edge of mandril 134a can be appreciated from Fig. 13A (before formation of structural material 148) as extending from the left most side of mandril 134a to the right most side. Device feature 158 is shown in Figs. 15B-C to extend to the full lateral extent of mandril 134a. At least for such reason, claim 72 has a proper description in the present specification.

At least for the reasons described above, claims 68, 69, and 71-87 have a proper description in the specification and Applicant requests withdrawal of the rejection in the next Office Action.

Claims 64-87 stand rejected under 35 U.S.C. 102(b) as being anticipated by Pogge. Applicant requests reconsideration.

Claim 64 sets forth an intermediate construction of an integrated circuit that includes, among other features, a raised mandril being raised out from a semiconductiv substrat , having at least one edge substantially

09/851,634
January 6, 2004

Wells St. John P.S.

perpendicular to the substrate, and having at least one beveled edge and a layer of structural material forming an edge defined feature on the at least one perpendicular edge. Page 4-5 of the Office Action allege that Pogge discloses every limitation of claim 64. However, Applicant asserts that Pogge does not disclose an edge defined feature on a substantially perpendicular edge.

Allegedly, column 10, lines 53-65 of Pogge describe a layer of structural material that forms an edge defined feature on a perpendicular edge, even though the structural material is not shown in the drawings. In the referenced text, a metallization layer can be applied to the finished assembly 500. It is clearly apparent from the text of Pogge that such a metallization layer will be formed over integrated circuit chips 501a-e and will not contact any substantially perpendicular edge of a raised mandril that also has at least one beveled edge.

Page 4 of the Office Action relies upon projections 403 shown in Figs. 4A-B (four-sided mesa-like structures having four sloping sidewalls) as allegedly disclosing the raised mandril of claim 64. Nevertheless, integrated circuit chips 501a-e completely cover each of the projections 403 shown in Fig. 5. The intended purpose of projections 403 is to align integrated circuit chips 501a-e. Pogge does not disclose or suggest any alternative wherein a metallization layer may be formed on any edge of projections 403. Instead, Pogge expressly describes the metallization layer as being separated from projections 403. Since projections 403 are used to align integrated circuit

09/851,634
January 6, 2004

Wells St. John P.S.

chips 501a-e, it would frustrate an intended purpose of Pogge for a metallization layer to be formed on an edge of a projection 403. Given the close tolerance in the dimensions of projections 403 compared to the dimensions of integrated circuit chips 501a-e, a metallization layer would frustrate the desired alignment. At least for such reason, Pogge fails to disclose every limitation of claim 64.

In addition, the term "edge defined feature" is defined at least at page 2, line 19 to page 3, line 11 of the present specification. Applicant asserts that Pogge does not anywhere disclose a layer of structural material that meets the definition of an edge defined feature on any substantially perpendicular edge of projections 403. At least for such additional reason, Pogge does not disclose every limitation of claim 63.

Claims 65-70 depend from claim 64 and are not anticipated at least for such reason as well as for the additional limitations of such claims not disclosed. For example, claim 65 sets forth that the bevel is less than or equal to about 45°. The term "bevel" is defined at least at page 18, lines 6-7 of the present specification. As is readily apparent from such text and Fig. 13A of the present specification, Figs. 4A-B of Pogge do not disclose any projections 403 with a bevel less than or equal to about 45°. Instead, those of ordinary skill readily recognize that the bevel of projections 403 is much greater than 45°. At least for such reason, Pogge does not disclose the subject matter of claim 65.

09/851,634
January 6, 2004

Wells St. John P.S.

Also, for example, amended claim 66 sets forth that the raised mandril has four edges, including two edges perpendicular to the substrate and two beveled edges. The text of Pogge consistently describes projections 403 as "having four sloping sidewalls." Accordingly, Pogge does not disclose any raised mandril including two edges perpendicular to the substrate. At least for such reason, Pogge does not anticipate the subject matter of claim 66.

Page 2, line 19 to page 3, line 11 and elsewhere throughout the present specification describe a problem commonly occurring with forming edge defined features. At least page 21, line 10 to page 23, line 11 of the present specification describe how the intermediate construction of claim 64 resolves the problem of forming an edge defined feature wherein a subsequent mask of edge defined features is necessary for etching of undesired vertical portions. The intermediate structure of claim 64 uniquely resolves such problems in the art.

Applicant notes that the Federal Circuit has determined that the problem confronted by the inventor must be considered in determining whether it would have been obvious to modify references in order to solve that problem. Diversitech Corp. v. Century Steps Inc., 7 USPQ2d 1315, 1318 (Fed. Cir. 1988). If the references do not address or even recognize the problem they cannot begin to teach or suggest a solution to it. The reference cited in the Office Action does not address the problem solved by Applicant's invention and, accordingly, cannot suggest a solution to such problem. The Federal Circuit further stated that "the nature of the problem 'which persisted

09/851,634
January 6, 2004

Wells St. John P.S.

in the art,' and the inventor's solution, are factors to be considered in determining whether the invention would have been obvious to a person of skill in that art." Northern Telecom v. Datapoint Corp., 15 USPQ2d 1321, 1324 (Fed. Cir. 1990). In Northern Telecom, the Federal Circuit confirmed a finding that the claims were valid in view of prior art that did not "suggest the [inventors'] solution" to a problem. Id. at 1323-24. Applicant asserts that Pogge does not recognize the problem described in the present specification nor the solution provided by the intermediate construction of claim 64. At least for such additional reason, Pogge does not anticipate claim 64.

Claim 71 sets forth an intermediate construction of an integrated circuit that includes, among other features, a raised mandril being raised out from a semiconductive substrate and having at least one edge substantially perpendicular to the substrate, at least one beveled edge, and a step parallel to the substrate and a layer of structural material forming an edge defined feature on a substantially perpendicular edge. The edge defined feature is not formed on the beveled edge or the step. As may be appreciated from the discussion above regarding the deficiencies of Pogge as applied to claim 64, Applicant asserts that Pogge does not disclose a layer of structural material forming an edge defined feature on a substantially perpendicular edge. In addition, Applicant asserts that Pogge does not disclose such a layer of structural material that is not formed on a beveled edge or a step. At least for such reason, Pogge does not anticipate claim 71. Claims 72-79 depend from claim 71 and are not anticipated at least for such reason as well as for the

09/851,634
January 6, 2004

Wells St. John P.S.

additional limitations of such claims not disclosed. For example, as may be appreciated from the discussion above regarding the deficiencies of Pogge as applied to claims 65 and 66, respective claims 74 and 75 are also not anticipated.

Claim 80 sets forth an intermediate construction of an integrated circuit that includes, among other features, a raised mandril being raised out from a semiconductive substrate and having at least one edge perpendicular to the substrate and at least one beveled edge and a layer of structural material forming an edge defined feature on a perpendicular edge. The edge defined feature extends to a full lateral extent of the perpendicular edge. As may be appreciated from the discussion above regarding the deficiencies of Pogge as applied to claim 64, Pogge does not disclose an edge defined feature on a perpendicular edge. Also, all of the edges of projections 403 in Pogge are sloping sidewalls. In addition, Pogge does not disclose an edge defined feature extending to a full lateral extent of the perpendicular edge. Claims 81-87 depend from claim 80 and are not anticipated at least for such reason as well as for the additional limitations of such claims not disclosed. For example, as may be appreciated from the discussion above regarding the deficiencies of Pogge as applied to claims 65 and 66, respective claims 82 and 83 are not anticipated.

In keeping with the assertions herein, Applicant asserts that Pogge does not anticipate claims 64-87 and requests allowance of such claims in the next Office Action.

09/851,634
January 6, 2004

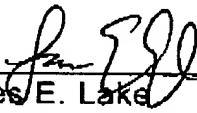
Wells St. John P.S.

Applicant herein establishes adequate reasons supporting allowance of all pending claims and requests allowance of all such claims in the next Office Action.

Respectfully submitted,

Dated: 06 Jan 2004

By:


James E. Lake
Reg. No. 44,854